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EXAMINER

RAMDHANIE, BOBBY

ART UNIT

PAPER NUMBER

1797

NOTIFICATION DATE

DELIVERY MODE

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ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 02/20/2009 have been fully considered but they are not persuasive. The following reasons are why:

2. First, Applicants have amended the claims to now include, "the environmental effect being made to act on the sample with a known position-dependent intensity distribution to cause a physical change to the sample." Applicants allege that Fay et al fails to teach the following:

3. A). subjecting the sample to the environmental effect for an action time the environmental effect being made to act on the sample with a known position-dependent intensity distribution to cause a physical property change to the sample, which is based on a pattern function;" and

4. B). Determining correlation of the known position dependent intensity distribution of the environmental effect...the correlation being a measure of the change of the physically measurable property of the sample due to the environmental effect." The Examiner respectfully disagrees.

5. In response to A): Fay et al discloses the environmental effect laser irradiation is an "environmental effect" and the "mask" supplies the position-dependent intensity distribution and pattern function. In addition, printing (Please See Column 2 lines 39-43) and etching (Please see Column 2 lines 34-38) can all be considered environmental effects which change physical properties of the sample.

Art Unit: 1797

6. In response to B).: Laser irradiation to print, is a correlated process (Please See column 2 lines 39-46 linewidth and Column 2 lines 60-67) & phase contrast grating (Please See lines Column 2 lines 34-38).

7. Applicants argue that "in Fay et al no sample is subjected to an environmental effect that changes the physical property of the same sample. (Please see remarks on page 10 of response filed 02/20/2009)." Etching and printing both change the physical properties of shape and contour (texture) of the wafer. The correlation of these "environmental effects" is used in the alignment process and is inherent to the etching printing processes to determining whether or not the etching has occurred and to what extent.

8. Applicants also allege that Fay et al "fails to teach detecting transmission, reflection, or scattering of analysis radiation by the sample as a function of position coordinates of the sample *and* wavelength of the analysis radiation." The Examiner respectfully disagrees. Fay et al clearly discloses the alignment modules, package combination of the optics, the laser sources and detectors, are automatically positioned to accommodate different field sizes and different target sets. Applicant has not demonstrated this process can occur without detecting transmission, reflection, or scattering of analysis radiation by the sample as a function of position coordinates of the sample *and* wavelength of the analysis radiation (note: Fay et al discloses that the light is reflected by the wafer line grating is diffracted into its various orders. This diffraction allows an alignment signal to be spatially separated, freeing it from optical interference with the light reflected by the mask target; (Please See Column 3 lines 9-16).

Art Unit: 1797

9. Applicants argue that Richards fails to disclose "subjecting the sample to the environmental effect for an action time, the environmental effect being made to act on the sample with a known position-dependent intensity distribution made to act on the sample with a known position-dependent intensity distribution to cause a physical property change to the sample, which is based on a pattern function (See Remarks Page 11)." The Examiner respectfully disagrees.

10. The Examiner has cited at least two portions of Richards et al ([0021] and [0024] both of which qualify as subjecting a sample to an "environmental effect." Applying an electrical current to the sample qualifies as an "environmental effect" and "curing" which is subjecting the sample to elevated temperatures (i.e. - baking) is also interpreted as an "environmental effect." Both of these "environmental effects" change the texture, gloss, luster, or contour of the sample. Curing is performed for a "time period" to "cure" the coating otherwise the coating would not be "cured."

11. Applicant argues that the AC current is applied the same way over the entire coating, but applicants extremely broad claims do not eliminate the very basic known position dependent intensity distribution of the "environmental effect" to all be the same.

12. Further, Applicant argues that Richards et al fails to teach subsequently "detecting transmission, reflection, or scattering of analysis radiation by the sample as a function of position coordinates of the sample and wavelength of the analysis radiation, so as to determine a response function that describes intensity of the transmitted, reflected, or scattered analysis radiation as a function of the position coordinates of the sample and the wavelength." The Examiner respectfully disagrees. The Applicant has

Art Unit: 1797

failed to show that detecting a visual result as disclosed in [0024] is not the same broadly claimed limitation.

13. Further, Applicants have argued against a 103(a) combination of Richards et al and Clark by using piecemeal analysis.

14. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

15. In response to applicant's argument that Richards et al is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Richards et al clearly discloses that that the coating developed is desirable in that the EL coating system be cross-linkable and suitable for application to an automobile body panel (Please see [0008]; which by the way Richards et al discloses that conventional coatings are not suitable for automobiles because of lack of crosslinking of the compositions) where durability and the physical integrity of the coating system, relative to weathering and exposure, are paramount (Please see [0006]).

Art Unit: 1797

16. Clearly this is pertinent to applicant's field of endeavor where Applicant has recited that examples of samples for detecting modifications of the characteristic of the samples, sample which need particularly long exposure times are façade paints, highway signs, sealing materials for buildings, electrical insulators, roof tiles, and safety glazing materials (Please See Page 1 of Specification lines 22-26) and the term "sample" used very broadly and in general includes objects which can be deliberately subjected to particular environmental effects – See Applicants Specification Page 3 lines 16-24) - automobile body panels are deliberately exposed to environmental effects and may include pigments for color. Graphic designs or tape on the automobile body panels can all act as "masks" to the paint surface.

Response to Amendment

Claim Rejections - 35 USC § 102

17. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

18. Claims 39, 41, 42, 49, 52-56, 58, 61, 63, 65, & 77 are rejected under 35 U.S.C. 102(b) as being anticipated by Fay et al (US4704033).

19. Applicants' claims are toward a method.

20. Regarding Claims 39, 41, 42, 49, 52-56, 58, 61, 63, 65, & 77, Fay et al discloses the method for detecting change of a physically measurable property of a sample due to

Art Unit: 1797

an environmental effect, comprising: A). Subjecting the sample to the environmental effect for an action time (See Summary of Invention - lasers and etching are "environmental effects," the environmental effect being made to act on the sample with a known position-dependent intensity distribution to cause a physical property change to the sample, which is based on a pattern function (See Column 2 lines 36-52, mask); B). Subsequently detecting transmission, reflection, or scattering of analysis radiation by the sample as a function of position coordinates of the sample and wavelength of the analysis radiation, so as to determine a response function that describes intensity of the transmitted, reflected, or scattered analysis radiation as a function of the position coordinates of the sample and the wavelength (See Column 1 lines 60-65; alignment system and etching); and C). Determining correlation of the known position-dependent intensity distribution of the environmental effect, or of the pattern function on which this is based, with the response function by correlation analysis, the correlation being a measure of the change of the physically measurable property of the sample due to the environmental effect wherein the environmental effect is made to act on the sample through a mask, which has a specific position-dependent transmission function, so as to produce the position-dependent intensity distribution as an image of the mask on the sample (See Column 2 lines 53-61; etching. Correlation analysis is inherent to the process to determine whether or not the etching has occurred and to what extent).

21. Additional Disclosures Included: Claim 41: Wherein the environmental effect includes action of radiation, and the intensity distribution is a position-dependent and wavelength-dependent intensity distribution (See Column 2 lines 53-61; etching); Claim

Art Unit: 1797

42: The method as claimed in claim 39, wherein the environmental effect includes action of light (See Column 2 lines 54-58, etching the wafer target (i.e.- mask) is performed with the laser); Claim 49: The method as claimed in claim 39, wherein the environmental effect includes action of heat (the etching with the laser inherently includes heat); Claim 52: Wherein the intensity distribution is produced as a reference pattern on the sample (See Column 2 lines 54-58); Claim 54: Wherein exposure is carried out with artificial or natural sunlight (See Column 2 lines 54-61, alignment and etching is done with artificial light - laser); Claim 55: The method as claimed in claim 53, wherein the mask is a barcode mask (See Figure 1 See Mask – linear fresnel zone pattern may define a bar code); Claim 56: Wherein the intensity distribution is a periodic intensity distribution with a spatial frequency (See Column 2 lines 54-61 see spatial contrast); Claim 58: Wherein the transmission, reflection, or scattering of analysis light in UV-VIS and/or NIR ranges is determined (See Column 4 lines 45 & 60-62); Claim 61: Wherein the reflection of the analysis light is detected (See Abstract; return beams); Claim 63: Wherein the scattering of the analysis light is detected (See Column 4 lines 39-42, stray light may define a type of scattered light); and Claim 65: Wherein the reflection or scattering of the analysis light by the sample as a function of the position coordinates is detected using a color scanner (See Figure 1 Item 14, the light is detected by the scanner for alignment. It must be a color scanner because the lasers are of a visible light); Claim 77: Wherein said pattern function of the environmental effect produces a horizontal variable intensity pattern of the environmental effect on an upper surface of the sample (Please see Column 2 lines 36-45).

Art Unit: 1797

Claim Rejections - 35 USC § 103

22. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

23. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

24. Claims 39 and 41-76 are rejected under 35 U.S.C. 103(a) as being unpatentable over Richards et al (US20040110026) in view of Clark.

25. Applicants' claims are toward a method.

26. Regarding Claims 39 and 41-76, Richards et al discloses the method for detecting change of a physically measurable property of a sample due to an environmental effect, comprising: A). Subjecting the sample to the environmental effect for an action time (See [0021]); applying an electrical current to the sample qualifies as an environmental effect & [0024] curing which consists of an elevated temperature is also an environmental effect); B). Subsequently detecting transmission, reflection, or scattering of analysis radiation by the sample as a function of position coordinates of the sample and wavelength of the analysis radiation, so as to determine a response

Art Unit: 1797

function that describes intensity of the transmitted, reflected, or scattered analysis radiation as a function of the position coordinates of the sample and the wavelength (See [0024]; visual, the detecting transmission, reflection, or scattering of analysis and wavelength of the analysis distribution may be of only two types - sunlight or artificial light which allows for visual detection); and C). Determining correlation of the known position-dependent intensity distribution of the environmental effect, or of the pattern function on which this is based, with the response function by correlation analysis, the correlation being a measure of the change of the physically measurable property of the sample due to the environmental effect wherein the environmental effect is made to act on the sample through a mask, which has a specific position-dependent transmission function, so as to produce the position- dependent intensity distribution as an image of the mask on the sample (See [0024] & [0025]). Richards et al does not disclose that the environmental effect is sunlight. Clark discloses a method for detecting change of a physically measurable property of a sample due to an environmental effect, comprising: A). Subjecting the sample to the environmental effect for an action time, the environmental effect being made to act on the sample with a known position-dependent intensity distribution to cause a physical property change to the sample, which is based on a pattern function (Abstract); B). Subsequently detecting transmission, reflection, or scattering of analysis radiation by the sample as a function of position coordinates of the sample and wavelength of the analysis radiation, so as to determine a response function that describes intensity of the transmitted, reflected, or scattered analysis radiation as a function of the position coordinates of the sample and the wavelength

Art Unit: 1797

(Abstract); and C). Determining correlation of the known position-dependent intensity distribution of the environmental effect, or of the pattern function on which this is based, with the response function by correlation analysis, the correlation being a measure of the change of the physically measurable property of the sample due to the environmental effect (Abstract). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Richards et al with the method of Clark because according to Richards et al, the clearcoat film layer optimizes appearance and durability of the overall EL coating system (See [0026]).

27. Additional Disclosures Included: Claim 41: Wherein the environmental effect includes action of radiation, and the intensity distribution is a position-dependent and wavelength-dependent intensity distribution (See Clark [0003]) & Abstract); Claim 42: Wherein the environmental effect includes action of light (See Clark [0002] & [0003]); Claim 43: Wherein the environmental effect includes action of mechanical forces (See Clark [0002] & [0003]); Claim 44: Wherein the environmental effect action of chemicals (See Clark [0002] & [0003]); Claim 45: Wherein the environmental effect includes action of gases (See Clark [0002] & [0003]); Claim 47: Wherein the environmental effect includes action of radioactive radiation (See Clark [0002] & [0003]); Claim 48: Wherein the environmental effect includes action of sound waves (See Clark [0002] & [0003] Examiner takes the position that sound waves are a physical degradation process); Claim 49: Wherein the environmental effect includes action of heat (See [0002] & [0003]); Claim 50: Wherein the environmental effect is caused by weathering of the sample (See [0002] & [0003]); Claim 51: Wherein the environmental effect is caused by

Art Unit: 1797

application of chemicals to the sample; Claim 52: Wherein the intensity distribution is produced as a reference pattern on the sample (See Richards et al [0024]); Claim 53: Wherein the intensity distribution is produced by exposing the sample to light through the mask, which has a position-dependent and wavelength-dependent transmission function (See Richards et al [0024]); Claim 54: Wherein exposure is carried out with artificial or natural sunlight (See Clark [0001]); Claim 55: The method as claimed in claim 53, wherein the mask is a barcode mask (See Richards et al, [0024]); Claim 56: Wherein the intensity distribution is a periodic intensity distribution with a spatial frequency (See [0002] & [0003]. This is an inherent property of any analysis method where the analysis is performed using light); Claim 57: The method as claimed in claim 50, wherein the correlation analysis is a Fourier analysis (See Clark [0004]); Claim 58: Wherein the transmission, reflection, or scattering of analysis light in UV-VIS and/or NIR ranges is determined (See Clark [0004]); Claim 59: Wherein the transmission, reflection, or scattering of analysis radiation by the sample is determined for a plurality of wavelength ranges, so as to determine a plurality of response functions for the plurality of wavelength ranges (See Clark [0004] This is an inherent property of the operation of any instrument using Fourier transformation); Claim 60: Wherein a response function is respectively determined for red, green and blue light by RGB analysis (See Clark [0027] CCD cameras are capable of analyzing RGB colors); Claim 61: Wherein the reflection of the analysis light is detected (See Clark [0001]) The measurement of gloss is a definition of reflection & Richards et al [0006]); Claim 63: Wherein the scattering of the analysis light is detected (See Clark [0004]); Claim 64:

Art Unit: 1797

The method as claimed in claim 63, wherein a confocal color measurement system is used for detection of the scattering (See Clark [0027] The Chemilume CL100 is a confocal color measurement system); Claim 66: Wherein the reflection or scattering of the analysis light by the sample as a function of the position coordinates is detected using a digital camera (See Clark [0027]); Claim 67: Wherein the response function is determined using a digital image processing electronics (See Clark [0027]); Claim 68: The method as claimed in claim 61 for determining the change of luster of a substrate surface (See [0001] Gloss defines luster); Claim 69: Wherein the substrate surface is a paint surface (See Clark [0030]); Claim 70: Wherein the paint is an automobile paint (See [0005]); Claim 71: The method as claimed in claim 63 for determining light fastness of colorants, or of substrates colored using the colorants (See Clark [0001]); Claim 72: The method as claimed in claim 39 for studying photoinduced or photo-oxidative aging of substances (See Clark [0027]); Claim 73: Wherein the substances are selected from plastics, optionally colored using colorants, paints, textiles, metals, paper, wooden articles, construction materials, and cosmetic formulations (See Clark [0001]); Claim 74: The method as claimed in claim 39 for studying weatherproofness of substances (See Clark [0001-0003]). Examiner takes the position that weatherproofness is defined by Clark et al as durability to withstand outdoor conditions); and Claim 75: The method as claimed in claim 39 for studying chemical stability of substances (See Clark [0001-0003] Examiner takes the position that the chemical stability is defined as durability).

Art Unit: 1797

28. For Claim 46, Richards et al in combination with Clark discloses the method as claimed in claim 39, except for where the environmental effect includes action of microorganisms. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the testing of Clark et al to include microorganisms because they are found to effect changes on surfaces of almost everything found in the outdoor environment as well as have adapted to use paints and coatings as a food source.

29. For Claim 62, Richards et al in combination with Clark et al discloses the method of claim 61, except that using telecentric measurement optics are used for detection of the reflection. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Clark et al with a telecentric lens because it is well known in the art that the advantage of telecentric optics is that objects at various distances can be measured within a few thousandths of an inch, whereas this measurement could not be obtained with conventional optics.

30. For Claim 65, Clark et al teaches the method as claimed in claim 39 except wherein the reflection or scattering of the analysis light by the sample as a function of the position coordinates is detected using a color scanner. Clark et al does teach the use of analog devices or a CCD camera. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Clark et al to use a color scanner because a color scanner is an obvious variant of a CCD camera.

31. For Claim 76, the combination of Richards and Clark et al discloses the method as claimed in claim 39, except for studying abrasion resistance of coatings on a

Art Unit: 1797

substrate. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Clark et al with studying abrasion resistance because it is well known in the art that chemical resistance is performed with rubbing Methyl Ethyl Ketone onto the surface of the paint and physical resistance is performed by exposure of coatings of Panels to direct sun, wind, and rain exposure as arrays of panels on rooftops. Examiner takes the position that wind and rain carry particles which would allow for abrasion to occur. In addition, Richards et al discloses the importance of the durability of the top coat of the coating system which enhances the EL layer (See Richards et al [0026]).

32. For Claim 77, the combination of Richards et al and Clark disclose the method of Claim 39, except wherein said pattern function of the environmental effect produces a horizontally variable intensity pattern of the environmental effect on an upper surface of the sample. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination to include this feature since Richards et al discloses that masking can be accomplished in a variety different ways including designs (horizontally variable intensity patterns), shape, letters, etc.(Please see [0024]).

Telephonic Inquiries

33. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Art Unit: 1797

34. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

35. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BOBBY RAMDHANIE whose telephone number is (571)270-3240. The examiner can normally be reached on Mon-Fri 8-5 (Alt Fri off).

36. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walter Griffin can be reached on 571-272-1447. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

37. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

Application/Control Number: 10/568,584

Page 17

Art Unit: 1797

USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/B. R./

/Walter D. Griffin/

Supervisory Patent Examiner, Art Unit 1797